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Animal Keepers' Forum

AKF



February 2015, Volume 42, No. 2



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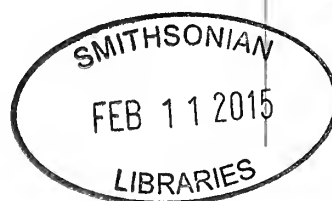
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The American Association of Zoo Keepers, Inc. exists to advance excellence in the animal keeping profession, foster effective communication beneficial to animal care, support deserving conservation projects, and promote the preservation of our natural resources and animal life.

About the Cover

This month's cover comes to us from Dane Jorgensen of the Birmingham Zoo. His photograph features a sun bear (*Helarctos malayanus*) male named HoHo, who was born in 1989 and has been at the Omaha Zoo with female Cupcake for the majority of their lives. Keepers have done a fantastic job with their sun bear training. This photo was taken during a public demonstration where keepers are able to feed the two bears at their respective stations on exhibit. Positive-reinforcement training allows keepers to facilitate medications if ever needed. HoHo is trained for a number of other behaviors, including open mouth, side, target, and several important body part inspections. Currently keepers are working with him to train for a voluntary blood draw.

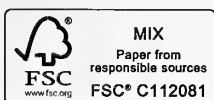
While sun bears are a highly charismatic and interesting exhibit animal in a number of AZA facilities, their future status in zoos and in the wild remains uncertain. Unsuccessful breeding and poor genetics have been detrimental to their Species Survival Plan (SSP), which is extremely unfortunate as they stand as one of the least understood bear species and a unique educational animal for the general public. Like many other inhabitants of Southeast Asia, major threats continue to jeopardize their population's future survival. For more information on these amazing bears, please go to sunbears.wildlifedirect.org and look up the impressive work of leading researcher Siew Te Wong.

Articles sent to **Animal Keepers' Forum** will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for **AKF**. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the Editor. The Editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or e-mail contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone (330) 483-1104; FAX (330) 483-1444; e-mail is shane.good@aazk.org. If you have questions about submission guidelines, please contact the Editor. Submission guidelines are also found at: aazk.org/akf-submission-guidelines/.

Deadline for each regular issue is the 3rd of the preceding month. Dedicated issues may have separate deadline dates and will be noted by the Editor.

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Animal Keepers' Forum is published monthly by AAZK, Inc.
Ten dollars of each membership fee goes toward the annual publication costs of *Animal Keepers' Forum*. Postage paid at Tucson, AZ.

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— Vince Lombardi

As animal care professionals, we strive to provide the best care available for our animals. Our passion fuels our focus and our skills and expertise craft new and innovative ways to raise the bar in animal keeping. For some, that passion extends outside of their daily work, resulting in keeper-initiated contributions to conservation. We see examples of these innovations during our conference presentations and within the AKF and I am willing to bet that there are more outstanding examples of praiseworthy contributions that do not get highlighted here in the AKF or at our conferences.

Sadly though, when the time comes to recognize our peers for outstanding achievements, the inflow of nominations does not reflect a membership of almost 3000. Even more disappointing is that a low nomination turnout has become standard practice. To help improve the nomination process, we started a practice of providing earlier notices about our awards program two years ago. This year, we sent out a save-the-date e-blast, giving you the opportunity to mark the deadlines on your calendars.

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Be a leader in the promotion of positive reinforcement in the work place by nominating someone today. Deadline for Awards Nominations is 1 MAY 2015. For more information, go to: <https://www.aazk.org/committee/awards-committee/>

As always, I welcome your thoughts and input. E-mail me at bob.cisneros@aazk.org; I would love to hear from you. Drop me a line, I promise to write back.

Bob Cisneros



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For more information contact

Alison Grand at:

agrand@lemurreserve.org.

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September 17-21, 2015

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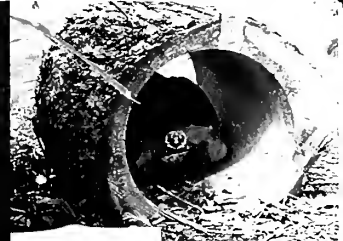
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"The Tail of Pekwa"

Stereotypic Behavior in a Brown-nosed Coati (*Nasua nasua*)

***Sara Travis, Animal Trainer III, Vice President of AAZK Chapter
Palm Beach Zoo
West Palm Beach, Florida***

***Photo by Angela Ledford
Media Relations Manager at the Palm Beach Zoo***



Abstract

A brown-nosed coati (*Nasua nasua*) developed a stereotypic behavior that involved self-mutilation of her tail. Through training, enrichment, veterinary medicine, and social interaction with a keeper, her behavior has been curbed. The extinguishing of this behavior proved to be one of the most challenging and resource-exhausting efforts for keeper and vet staff to conquer.

Introduction

Stereotypic behavior has been defined as a repetitive, invariant behavior pattern with no obvious goal or function (Mason, 1991). Stereotypic behaviors appear to be associated with animals housed in captivity, since there is no known observation of these behaviors being observed in animals that live in the wild. One explanation could be the animal's desire or need to perform natural behaviors and their inability to do so in an enclosure (Mason, 2007). Stereotypic behaviors include pacing, over-grooming and self-mutilation.

There are many factors that can cause stereotypic behaviors. One factor could be environmental triggers induced from being in captivity such as pacing right before feeding or shifting. Another factor could be a result of early improper rearing. The animal may have been separated from its parents before developing mentally and/or physically. Also, improper social structuring can have a negative effect on the animal's wellbeing. Another factor could be an improper balance in the mental state of the animal. While the last is a rare case, it must still be considered when treating a stereotypic behavior.

Coatis are in the family *procyonidae* (raccoon family). There are approximately four species of coati inhabiting the range from southern Texas to northern Argentina. Female coatis are social while males tend to be solitary. Tight groups are guarded by aggressive females that only allow a single male into the group during breeding season. Young males, also known as coatimundis, will form bachelor groups. Coatis are omnivores that use their long nose to dig for insects and use their tail for balance while climbing trees in search of fruit. Coatis live primarily in forested areas, however much like the North American raccoon, they can adapt to an urban lifestyle. Coatis are listed as "least concern" by the IUCN Red List, however, deforestation and the pet trade do contribute to a decline in their population. Coatis live in several protected areas in South America and one subspecies (*N. n. solitaria*) is a protected animal in Uruguay making the trade of this species illegal.

Palm Beach Zoo accessioned their first coati in March of 2011. *Tweak* was purchased by a teenage boy to have as a pet when she was extremely young, probably around the age of two to three months. She was presumed to be a South American coati based on her markings but since she came from the pet trade it is very possible she is a hybrid. *Tweak* had free range of the two story house where she would practice her climbing on the staircase and use the boy's bed as her personal latrine. The young man was able to harness her and take her on walks but she would prefer to ride on his shoulders and jump from person to person. The coati became aggressive at times (biting the boy and his family members). After three months of owning

this rambunctious creature he decided he could not handle the responsibility of being an exotic pet owner and donated her to Palm Beach Zoo. Since this animal was well socialized, she was accepted into the collection with the plan of dedicating her as an animal ambassador. Staff changed her name to *Pekwa*, the Mayan god of thunder.

Pekwa's quarantine housing was at the Animal Care Complex (animal hospital) in a large concrete room (approximately 12 feet by 12 feet, 12 feet high) with various perching and one hide box. During her quarantine, she bonded with two keepers (the author and the author's previous manager) and was very tractable, accepting a harness and going on walks. When the manager left the zoo, all responsibility for the care of this animal fell upon the author. During her time in quarantine, the author trained *Pekwa* to not jump on shoulders but to walk calmly into the arms if the coati desired to be held. This behavior of jumping or riding on shoulders might encourage zoo guests to adopt coatis as pets, seeing it as "cute" to see her riding on a staff member's shoulders. When the coati's 30-day quarantine was complete in April of 2011, she moved behind-the-scenes to an enclosure (approximately 8 feet by 12 feet, 8 feet high) with perching and a hide box. A chute was added to connect to an adjacent enclosure of the same size. She was enriched daily. She was always entertaining to watch as she tackled various cognitive and physical challenges such as foraging toys, hanging browse and ice blocks.

During the year of 2011, *Pekwa* was taken on walks around the zoo to acclimate her to the surroundings and to guests. There was little harness training as she was able



Figure 1. Tail bone exposed.



Figure 2: Pekwa with feeder puzzle ball for enrichment. Food items are inside.



Figure 3: Tail wrap with metal sutures in bandage.

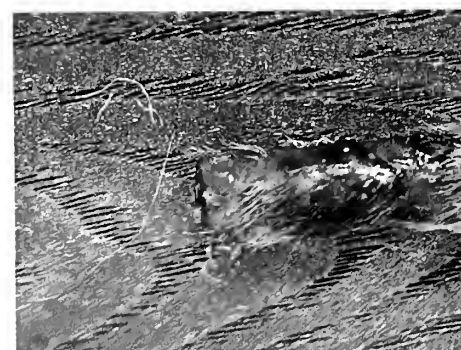


Figure 4: Tail badly mutilated.

to be held in the arms and the harness was slipped on. In February of 2012, keepers noticed the tip of *Pekwa's* tail was becoming red and raw/irritated so the vet staff prescribed the application of BariCare™ cream for two months. In April of 2012, keepers also noticed the skin on her stomach and underarms was red and possibly irritated. This redness showed up within days of adding mulch to her enclosure, so keepers hypothesized that *Pekwa* might be having a reaction to the new substrate. The mulch was promptly removed and replaced with sod. After two months, the skin irritation/redness had disappeared from her underside and the tail rawness had completely healed. In July of 2012 she began appearing in the Wild Things Show at the Zoo as an animal ambassador. *Pekwa* had her first estrous cycle in August of 2012. She became extremely tractable and she was used in shows regularly through the end of the year.

September through December of 2012 *Pekwa* was harness and leash trained by using positive reinforcement. The same tactic was used for crate training. In the show she stationed in various locations on stage and was rewarded for sitting, walking on her hind feet, and climbing upside down. She was able to be extremely close to the audience, climbing up the center banister of the stands. The Wild Things Show presented her story as a way to raise awareness about the challenges and difficulties associated with owning an exotic pet. *Pekwa* was even featured on the local news.

In January 2013, *Pekwa* became less tractable and even aggressive to her keepers, including the author. Restraint had to be used to secure a harness as she began to bite the author during training sessions whenever hands approached her. She was only featured in shows when she was in estrous (one week in February 2013) and was able to be handled. When she reached approximately two and half years of age in February 2013, keepers noticed the tip of her tail was red and irritated again, and this time, it also had hair loss. The raw spot was again treated topically as before, but at the end of February 2013 she was observed attacking her tail multiple times causing worsening damage. No one trigger could be identified. The behavior (biting, scratching at tail furiously while squeaking) was triggered at different times of the day, with and without a food stimulus, with and without traffic outside her enclosure, with and without

enrichment. The author even noticed *Pekwa's* tail move towards her food bowl (perhaps involuntarily) and she promptly attacked it, beating it away.

Methods

In an effort to prevent these attacks, four main tactics were attempted. They were training and enrichment, medications, surgery, and allergen elimination.

Training and Enrichment

At the end of March 2013, she moved to a larger enclosure (approximately 15 feet by 12 feet, 20 feet high) with more sun light and more interaction time with guests. She also had high perching, two hammocks, a hide box, look-out platform, rope ladder, stream and PVC pipe tunnel as furniture. Her previous enclosure was behind-the-scenes while the new enclosure was in public view. She was also put on an enrichment schedule 2x/day (see figures 2, 6, and 7) with random training sessions set up throughout the day as well. Enrichments were varied and creative. Cognitive challenges such as feeder balls or hiding food in her enclosure were used as were physical challenges such as food hidden in boxes hanging from perching. She was also put on a training schedule of 2x/day with sporadic training sessions if time allowed. *Pekwa* was trained to shift into a night house, station on a platform, sit, climb upside down on perching as well as hang upside down by her back feet from a perch.

Medications

There are various anti-depressant medications that are now available for use in exotic animals. Different methods were attempted to administer medications in a variety of food sources from fish to peanut butter, honey, and finally successfully in a hardboiled egg. Naltrexone is commonly used for humans to treat narcotic addiction. In animals naltrexone hydrochloride is the drug of choice for the antagonism of any opiate sedation in any species (Naltrexone, n.d.). As naltrexone failed to prevent her from attacking her tail, other drugs were tried over the months of April and May: amitriptyline and haloperidol. Both of these drugs are antidepressants with amitriptyline specializing as a mood enhancer and haloperidol specializing in controlling motor tics (Medline Plus, 2013). An injection of depo-provera, a birth control to help control her hormones, was administered. Prozac is used to treat depression and obsessive-compulsion disorder. Prozac is now given to zoo animals and pets suffering from problems

including obsessive-compulsive disorders, aggression, and separation anxiety. Some patients are weaned off the drug in a few months, while others stay on it for the rest of their lives (Mott, 2005).

Surgery

In March of 2013 she attacked her tail to the point where her bone was exposed. Surgery was decided and she was moved to the hospital. After surgery, various bandage techniques were attempted to prevent stitches from being prematurely pulled out. Initially, metal sutures were present around the surgery site but *Pekwa* was able to open the wound and exposed the tail bone again despite being

Miraculously, after about two weeks of the food restrictions and treatment of Prozac the redness on her belly went away and the attacks stopped.

on a sedative (see figure 4). In June of 2013 another surgery was performed to remove the mutilated area. During this procedure it was decided to spay her as well, as coatis are not a Population Management Program (PMP) or Species Survival Plan (SSP) species and possibly that would calm her hormones that might be adding to the urge to mutilate. Another bandaging technique was used that involved tape around the end of the tail with metal sutures sticking out of that (see figure 3). This did prevent the coati from opening the wound, however, the tail did not heal due to no oxygen flow through the sealed bandage.

Allergens

While *Pekwa* was in the hospital she was still attacking her tail despite staff keeping the same enrichment and drug dosage schedule. Her skin was noticeably red on her belly. The only constant was her food. Her diet included small carnivore meat, adult dog food, fish, egg, produce, and insects. It was decided to take out the dog food as this causes a common allergy. She was prohibited from having soy, corn, and peanut products as well.

Results

During her recovery in the hospital many brainstorming meetings occurred as to how to help this animal. Zoological managers sent out numerous e-mails to other coati

keepers asking for help. Wonderfully, many keepers came forward with various suggestions including enrichment ideas. It was surprising to find out how many coatis in zoological institutions had similar upbringings as *Pekwa*. Of the eleven institutions that responded, six of them had coatis that were previously-owned pets. Of those six institutions, four displayed some form of a stereotypical behavior, being it pacing, chewing, or non-provoked aggression. Of those four, three were singly-housed females. During our correspondences, many institutions had coatis that responded aggressively towards the jingling of keys; *Pekwa* does the same. Many coatis in zoos were previously-owned, bonded with one keeper when acquired by a zoo, and are used as educational ambassadors. While some institutions had experience with self-mutilation, the issue was resolved with a neutering or by socializing with other coatis.

No attacks occurred during training sessions, however, attacks did occur during some enrichment. Keepers were placed in front of her exhibit to try and identify a stimulus which triggered the attacks (see table 2). No stimulus was determined. The attacks escalated to as many as six times/day. Surgery was an unavoidable result of the mutilations. To save the tail, about two inches were amputated. While various medications were attempted, only Prozac proved to have any effect. After about a month of being on food restrictions, the redness on her belly and armpits disappeared and no attacks occurred. Miraculously, after about two weeks of the food restrictions and treatment of Prozac, the redness on her belly went away and the attacks stopped (see table 1).

It took roughly about a year to gain control over *Pekwa*'s stereotypic behavior but changes are still being made. We have discussed introducing her with another coati so she can have the social interaction female coatis need. The author still interacts with her daily but it does not duplicate what another coati interaction would be. *Pekwa*, to date, has had no attacks and staff is slowly weaning her off Prozac. She is still enriched and trained daily as well as has social stimuli from keepers and guests. Staff at the Palm Beach Zoo are proud to have *Pekwa* back on exhibit. Keepers train her daily in front of the public and her message about the exotic pet trade is so important to relay to guests. While *Pekwa*'s stereotypic behavior is finally under management



Figure 5: Tail finally healing.



Figure 6: *Pekwa* with complex feeder puzzle. Food items are hidden in compartments that have small doors that can be opened by animal.



Figure 7: Enrichment: food hidden in magazine.



Figure 8: *Pekwa*'s sleeping spot, a hammock.

there is still discussion of slowly taking her off Prozac to ensure a healthy life for her. Currently she is on a reduced dose and is showing no signs of regression.

Discussion

As care takers of these challenging animals, keepers must increase their creativity of their enrichment, sessions of training, and, sometimes when necessary, medication dosages. There are many theories about when *Pekwa's* stereotypic behavior started and she fits into Mason's three reasons for stereotypical behavior. *Pekwa's* behavior could be a combination of removal from her mother prematurely (a past, early rearing environment has affected CNS development, again resulting in abnormal behavioral sequencing, with effects evident long past infancy), being a single-housed female (internal states induced by the captive environment, and/or cues external to the animal, persistently trigger or motivate a specific behavioral response), and a food allergy (the environment creates a state of sustained stress which affects how [specific brain regions] elicit and sequence behavior, resulting in abnormal presentation). The initial attacks were probably provoked by her skin being irritated from food allergies but due to her past as a pet and being singly-housed at the zoo it progressed into a stereotypic behavior.

Stereotypic behaviors are one of the challenges animals and keepers face while living and operating in a managed care or captive environment. From these experiences and based on other institutions' findings, female coatis do not do well when housed alone. They are poor house pets as well. Living alone and in a house can cause many issues that could lead to stereotypic behaviors. While some countries ban the trade and sale of coatis, it is still a wide practice that should be eliminated among other exotic animal trading. Coatis thrive in the wild and have displayed little to no stereotypic behaviors. When coatis (and any animals) are present in zoological institutions, keepers have a responsibility to give that animal the best life possible but we can only mimic so much of the native habitat and lifestyle needs of the species. Through training, enrichment, social interactions, and sometimes drug therapy, keepers can gain an upper-hand on stereotypic behaviors and thus give their animals the quality of life they deserve.

Table 1. A timeline showing the chronological order of *Pekwa's* stereotypical behaviors and treatment


JANUARY 2013	<ul style="list-style-type: none"> ▶ Began to become aggressive during training sessions.
FEBRUARY 2013	<ul style="list-style-type: none"> ▶ Only in shows while she is in estrous because she is tractable. ▶ More attacks on tail noticed.
MARCH 2013	<ul style="list-style-type: none"> ▶ Bone becomes exposed in tip of tail. Surgery occurs. Received metoclopramide. ▶ Received Depo-provera to even out hormones as well as naltrexone to calm her. ▶ Moved to new exhibit in zoo for more social interaction with guests.
APRIL 2013	<ul style="list-style-type: none"> ▶ Scheduled enrichments, training sessions, and night house access. ▶ Keepers take shifts watching her. Recorded 2-4 attacks per day.
MAY 2013	<ul style="list-style-type: none"> ▶ Bone exposed again. ▶ Treatment with haloperidol started.
JUNE 2013	<ul style="list-style-type: none"> ▶ Surgery on tail as well as spaying. ▶ While in hospital, rips off bandages and stitches. ▶ Metal sutures applied around wrap and tranquilizers used. ▶ Prozac treatment started. ▶ Allergies assessed and diet adjusted. ▶ Bone exposed again. Surgery.
JULY 2013	<ul style="list-style-type: none"> ▶ No attacks noted. ▶ Tail is healed with scar tissue (see figure 5). ▶ Allergens in blood are reducing. ▶ Moved back out to exhibit.
AUGUST	<ul style="list-style-type: none"> ▶ Tail completely healed. ▶ Training on exhibit resumes.

Table 2. *Pekwa's* daily schedule

9 – 10 AM	Exhibit is opened (this includes husbandry, medications, and enrichment). She is locked out of her night house and on display.
10 – 11 AM	
12 – 1 PM	Monitored by staff.
1 – 2 PM	More enrichment and access to her night house given.
2 – 3 PM	Monitored by staff.
3 – 4 PM	Training session.*
4 – 5 PM	Exhibit closed (this includes husbandry if needed, medications, and enrichment).

*Training occurred at variable times as well as the set time of 3 pm.

UPDATE from the Author

We have successfully weaned *Pekwa* off Prozac by decreasing the amount, then dosing every other day, then discontinuing altogether. I am happy to say she has had no regression and has been Prozac-free since January 14, 2014 - Sara Travis 

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Acknowledgements

Abilene Zoo, Birmingham Zoo, Chattanooga Zoo, Cincinnati Zoo, Dakota Zoo, Edmonton Zoo, Fossil Rim Zoo, Fresno Zoo, Racine Zoo, Zoo Boise, and Zoo Miami for offering information and possible solutions for stereotypic behaviors seen in coatis (*Nasua nasua*).

Keepers, trainers (Callie Coxson, Maura Powers, Melissa Dolinsky) and interns at the Palm Beach Zoo who provided enrichment and patience for *Pekwa*.

Elizabeth Andersen, Assistant Curator, for offering insight on training *Pekwa*, reaching out to other zoos and editing paper.

All photos courtesy of Sara Travis unless otherwise noted.

Call for Papers

Dedicated Issue of AKF — Prosimians

We are planning a special edition of the *Animal Keepers' Forum* dedicated to Prosimians. We are accepting manuscripts for consideration to be included in this special issue. Possible topics might include, but are not limited to:

- ▶ Prosimian Husbandry
- ▶ Veterinary Care of Prosimians, Nutrition, Diabetes, Geriatric Care
- ▶ Behavioral Husbandry and Management
- ▶ Aggression, Family-group Cohesion, Troop Dynamics
- ▶ Mixed-Species Exhibits, Challenges, What Works, What Doesn't
- ▶ Conservation (*in situ* and *ex situ*)
- ▶ Field Research, *ex situ* research
- ▶ Legislative topics
- ▶ Special Topics like Sifaka Management, Nocturnal Species
- ▶ *Ex situ* Population Sustainability

Papers should be submitted electronically in MS Word to shane.good@azk.org and be no more than eight pages in length. Any charts or graphs should be submitted in their native program (i.e. Excel, Word, etc.). Photos should be high-resolution (300 dpi) jpg files, at least 1200 x 1800 pixels in size. Possible cover photos need to be at least 2625 x 3375 pixels in size. Be sure to include a photo credit and photo caption for each photo. Please reference the complete set of AKF submission guidelines at azk.org/akf-submission-guidelines/

Anyone interested in placing an ad, or sponsoring this special dedicated issue on Prosimians, please contact AKF Editor Shane Good at shane.good@azk.org.

Deadline for submitting articles for this special dedicated issue on Prosimians is July 1, 2015.



The Social Benefits of Freezer Flaps in the Winter Management of 0.2 African Elephants

Nate Elgart
Elephant Manager/Lead Keeper
Zoo Atlanta
Atlanta, Georgia



0.1 African Elephant Kelly

The installation of industrial freezer flaps has been one of the most critical management decisions made regarding Zoo Atlanta's two African elephants (*Loxodonta africana*). Once a balanced hierarchy of three cows, Atlanta's small herd was reduced to two after the death of Dottie in 2008. The remaining elephants, Kelly and Tara, both around 25-years-old at the time, were left to redefine dominance, submission and tolerance. Kelly quickly asserted herself as "the boss," and her methods of control over Tara transitioned to aggression.

Managing the group of two cows proved to be increasingly difficult, especially in regards to shifting, feeding, and housing overnight. Early attempts to shift Tara into the barn would often result in her being chased and tusked by a disapproving Kelly. Similarly, Kelly began to monopolize food during their daily feedings. It was the continued combination of these two problems and evidence of aggression occurring overnight that left the Zoo staff with an even bigger problem. How do you manage two elephants who can barely manage themselves?

One critical component that was implemented early in the process was the fact that the elephant care staff were determined to keep both elephants together. It became clear that separating Kelly and Tara after an incident, or overnight for that matter, was detrimental to both in the "fixing of a situation gone awry" and the long-term goal of having both elephants live together

successfully while maximizing the welfare of both individuals. Due to the facility's design, overnight separation proved to be difficult, and isolating the elephants from one another for a long period of time was an untenable option.

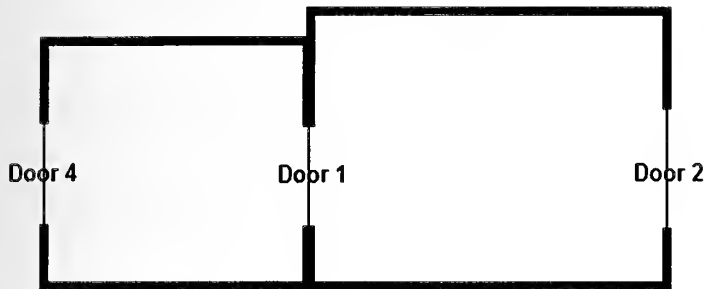
Zoo staff had to think of a way to provide both elephants with access outdoors, which would alleviate, if not eliminate, overnight aggression while maintaining the warmth needed in the barn during those colder months.

The answer was freezer flaps.

The initial installation of the freezer flap track system proved to be a failure. The factory brackets were not strong enough, and the elephants pulled the flaps and brackets down several times. We decided to wrap the freezer flaps around a 4'6" steel plate and anchor that into the frame of the barn door leading out to the exhibit. The 11 3/4" freezer flaps, six total, were overlapped and hung across half of the opening of the door. In this way, elephant care staff were able to close the hydraulic shift door halfway with the open space being filled with the hanging flaps, leaving just enough space for elephants to pass through.

When given access outdoors, Kelly did not monopolize the barn, and Tara was allowed indoors all night. The freezer flaps solved the problem.

When given access outdoors, Kelly did not monopolize the barn, and Tara was allowed indoors all night. The freezer flaps solved the problem.



0.1 African Elephant Tara



Overnight Temperature Guidelines

Overnight Temperature	Door 2	Door 4	Heat Setting	Fans
*Below 20°	*shut	*shut	65°	on
20°- 30°	halved	shut	70°-80°	on
30°- 40°	halved	shut	65°-75°	on
40°- 50°	halved	shut or cracked	60°-70°	on
50°- 60°	halved or open	cracked	60°-65°	on
Above 60°	open	gate 4 shut	off	on

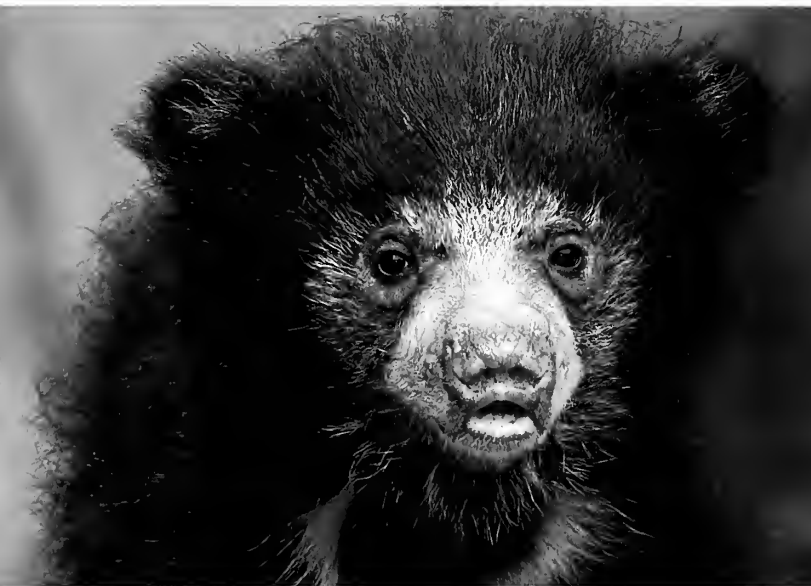
*Elephants will be separated and locked inside when temperatures are below 20°
 *Low lock in temperature due to social and facility restrictions
 *Barn can maintain ideal temperatures when freezer flaps are hung
 *Contact Elephant Manager about leaving the elephants together with access at closing time when overnight temperatures are below 20 degrees. Keepers will need to return later in the evening to separate them.

Since 2012, the elephant care team at Zoo Atlanta has been able to regularly leave both elephants together overnight with access to the exhibit year-round. Continued monitoring of overnight temperatures outdoors, as well as in the barn, led the team to revisit the temperature guidelines governing the elephants' outdoor access, as well as the heat settings in the barn. Thermometer and heat gun readings taken in the winters of 2012 and 2013 show that with the freezer flaps, both elephants were able to have access year-round while the barn maintained a constant temperature of 60 to 70 degrees. Currently, the only time that the elephants are locked in the barn overnight and separated is when outdoor temperatures are below 20 degrees. This low cut-off temperature was determined through the monitoring of overnight temperatures discussed above, as well as overnight observation of both elephants, and is flexible based on changes in health and age of the elephants.

Since the installation of the freezer flaps, elephant care staff have seen an increase in positive behavior between both elephants. Coupled with the addition of sand piles in the barn, both elephants lay down nightly within a few feet of the other. The keepers are able to consistently shift both elephants without incident, feed Kelly and Tara together without one animal monopolizing the food, and house them together overnight with little to no aggression.

For further information regarding the management of Zoo Atlanta's elephants and freezer flap installation, contact:

Nate Elgart
 Elephant Manager
 Lead Keeper of Elephants
nelgart@zooatlanta.org



Free Contact Training to Reduce Stress During a Sloth Bear Cub Exam

*Stacey Tabellario, Animal Keeper; Mindy Babitz, Animal Keeper; Tony Barthel, Curator;
Katharine Hope, Veterinarian, Smithsonian's National Zoological Park, Washington, D.C.*

Exams are regularly done in zoos to ensure the health of newborn animals, but these exams can cause stress for both mother and offspring. It is especially difficult to separate a sloth bear (*Melursus ursinus*) from her cubs since a female will carry cubs on her back for six-nine months after leaving the den (Joshi et al., 1999). Using a systematic training protocol, the animal care team at the National Zoo trained a voluntary separation of dam ("Hana") and cub ("Hank") that involved Hank walking away from Hana after separation and approaching staff on his own accord for tactile desensitization. We anticipated reduced stress for Hana if Hank walked away voluntarily as opposed to being handled by staff in front of her. We also anticipated reduced stress for Hank if he was used to tactile manipulation by staff in a free contact setting. After two and a half weeks of training, the animal care team conducted a stress-free exam. Female and cub were easily separated and Hank voluntarily participated in his exam, out of view of Hana who was also calmly engaged in a training session. There were no adverse behaviors resulting from the exam and both bears eagerly approached staff for interaction afterwards. Sloth bears are not a species that animal care staff typically works with in free contact but when done safely with young animals, this type of training can be hugely beneficial for reducing stress for both mother and offspring during an exam.

Figure 2



Figure 3

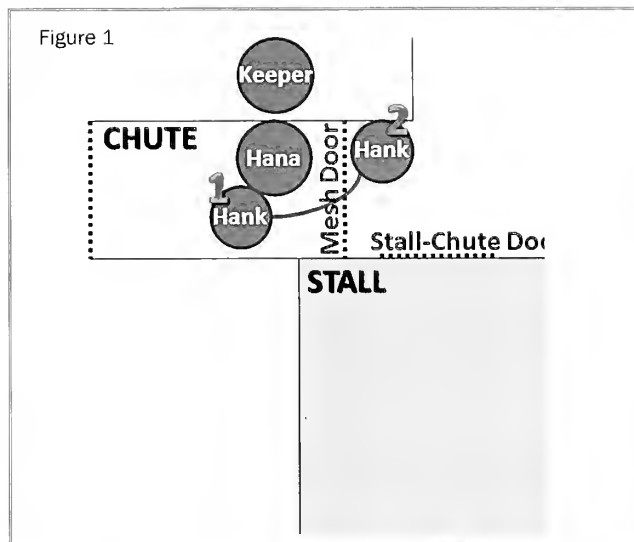


Step I: Separate

(Figure 1)

1. Recall both animals into chute.
2. Close mesh door to cub height.
3. Recall Hank to other side of mesh. (Figure 2)
4. Close mesh door all the way. (Figure 3)
(For safety, ask Hank to climb mesh so he is not near hydraulic door)

Goal: Both Hank and Hana will calmly accept being separated by a mesh door for varying durations.



Step II: Hank Voluntarily Walks Away From Hana

(Figure 4)

1. One keeper enters den with high-value reinforcer.
2. Keeper sits outside the den-chute door and calls Hank.
3. Hank receives reward for any movement towards keeper. (Figure 5)
4. Build up duration of time away from Hana.
5. Increase number of keepers in den.
6. Introduce vet exam tools (e.g., animal handling and latex gloves). (Figure 6)

Goals:

- ▶ Hank voluntarily walks away from Hana and towards keeper(s) in a free contact setting.
- ▶ Hank and Hana will calmly accept being separated and out of view from each other for varying durations.
- ▶ Hank will be exposed to tools typical of vet exams.

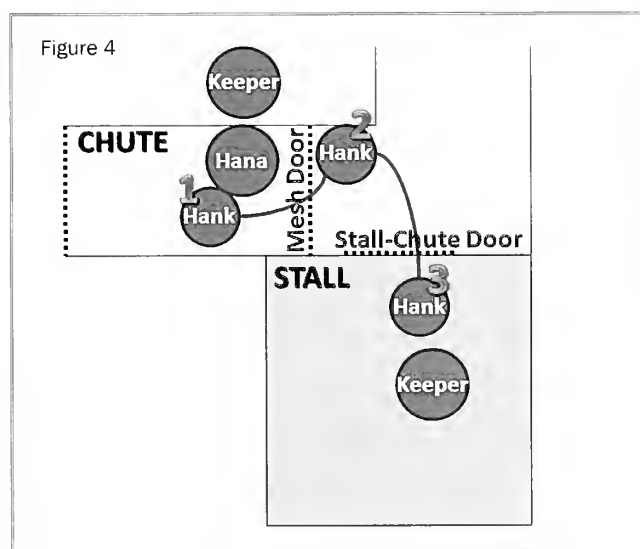




Figure 8



Figure 9



Reference: Joshi, A.R., Smith, J.L., and D.L. Garshelis. (1999). Sociobiology of the myrmecophagous sloth bear in Nepal. *Canadian Journal of Zoology* 77(11):1690-1704.

Acknowledgements & Photo Credits: Thanks to Tallie Wiles, Courtney Janney, Jenny Spotten, Juan Rodriguez, Marty Dearie, Nicole MacCorkle, Erika Bauer, and Brandie Smith for participating in brainstorming meetings and training sessions and for providing photographs.

Step III: Allow Tactile & Light Restraint

1. Keepers touch Hank. (Figure 7)
 - ▶ Reach towards Hank
 - ▶ Hand just over Hank (almost touching)
 - ▶ Light touch
 - ▶ Touch
 - ▶ Firm touch

Goal: Hank will calmly accept touch all over his body.

2. Keepers scruff Hank. (Figure 8)
 - ▶ Firm touch on scruff
 - ▶ "Pinch" of scruff
 - ▶ Light scruff with whole hand
 - ▶ Full scruff

Goal: Hank will be familiar with light restraint in case keepers have to restrain him during the exam.

3. Keepers pick up Hank. (Figure 9)
 - ▶ Scruff and gently pull up – Hank's feet still on the ground
 - ▶ Scruff and gently pull up – Hank's front feet lift off the ground
 - ▶ Scruff and pull up – Hank lifted completely off the ground
 - ▶ Keeper(s) experiment with different ways to hold and restrain Hank to see what makes him most comfortable

Goal: Keepers find comfortable position to hold Hank for the exam.

Tips

- ▶ **Reinforcers:** We used dilute peanut butter and honey water as reinforcers for both Hank and Hana. They did not receive these reinforcers any other time. Hana also received bone marrow – an extra rare and special treat – on the day of the exam.
- ▶ **Trainers:** We did not use primary trainers for the free contact sessions. We believe this helped prepare the bears for seeing multiple people on the day of the exam more quickly than introducing other trainers once the behaviors were learned. It also prepared Hank for seeing new faces regularly so on the day of the exam he was not frightened by the vets (who were unable to attend training sessions).
- ▶ **Ending:** Once our goal of a successful cub exam was achieved, free contact training sessions were discontinued. 🐻

BHC Comments by Jay Pratte:

"Initially our goal was to come up with a method of reducing the stress of the mother-cub separation thinking this would reduce risk of injury for the bears and start the procedure off on a calmer note. Our goal was to create a situation in which the cub and dam could choose to separate from each other and the cub could then be reinforced for approaching and being calm near keeper staff. This simple approach proved surprisingly successful both during training and when tested on the day of the actual neonatal exam. The results, in fact, were so successful that this process will be the new standard for sloth bear and other species management at the National Zoo."

Tony Barthel, Curator

"The veterinary examination was more thorough and less stressful than exams performed on other bear cubs that had not had similar desensitization training. The cub was comfortable with minimal manual restraint, enabling close examination of eyes, ears, nose and mouth; quiet auscultation of heart and lungs without crying; and abdominal palpation and genital evaluation. The only aspect of the exam for which the cub displayed a brief amount of distress was when he was vaccinated. Additionally, the dam was separated for approximately 10 minutes from the cub and did not vocalize at all but remained calm, allowing the exam to proceed to completion rather than being stopped prematurely due to her stress."

Katharine Hope, Veterinarian

"Often on exam day keepers, as well as their animals, feel stressed and anxious. However, having desensitized our cub – turning his fear response into interest, curiosity, and even play – we felt just as confident as he did when the vets arrived. Since Hank was given a choice to participate in each training session and in the exam, it was an enjoyable, easy experience for all involved. In addition to successfully completing the cub exam, keepers developed a trusting foundation for a relationship with the animal."

Stacey Tabellario, Animal Keeper

The intent to reduce the stress animals may experience while interacting with humans is an admirable and easily attainable goal with any species we work with. It is very easy for us to unintentionally create situations where we are introducing unnecessary stress, so planning ahead with this in mind meets both the animal AND keeper's needs! As we know, it may only take one or two aversive situations to "teach" an animal that it is going to be stressful. My dog has been trained to allow veterinary examinations and will sit for voluntary blood draws, but the experience always causes him stress. But even though he's "good at it", it is my responsibility to find the means of mitigating and reducing (or eliminating!) the stress altogether.

This article is a great demonstration of how the team reduced the stress of a procedure that we ALL experience at our institutions. The authors clearly thought through how to make it a reinforcing experience for both the mother and the cub. By using this approach, it allowed staff greater flexibility when they needed to gain access to the young animal. Instead of saying "we'll call you when we catch her away from her cub" you can now plan ahead, reducing stress for everyone, as well as making this an opportunity for the mother to be engaged in a reinforcing exercise while the cub is also engaged in receiving preferred treats during his experience.

Without using the described desensitization process, this situation would have involved restraint and stress for both the animals and staff. Because of his positive reinforcement history during these experiences this cub will understand the learning process, and have a huge head start on the protected contact training he will receive as he matures into adulthood. He will already trust his caregivers, and likely be less averse to novel or medically invasive stimuli. Great job to you all for thinking of the ANIMALS' needs and perspectives, while creating a thoughtful and, goal-oriented plan. Thank you for sharing your Training Tale!

Why it's NEVER

Too Early (or Late) to Plan for National Zoo Keeper Week and How You Can Get Started

*Robin Sutker, Animal Keeper, Maryland Zoo in Baltimore
National Zoo Keeper Week Program Manager*



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Fostering professionalism
in animal care
among Zoo Keepers

For zoo keepers National Zoo Keeper Week (NZKW) can be the most exciting seven days of the year. For AAZK Chapters and officers, however, it can also be the most time consuming and stressful. There are many reasons, including necessary managerial input and the perceived scale of events, that cause some Chapters to hold small NZKW activities or none at all. This doesn't have to be the case. NZKW should be just as fun and broad-reaching as the rest of the events a Chapter plans. It's a week not only celebrating one of the best professions in the world - but a chance to showcase it as well.

The most important step in planning for NZKW is to get facility "buy in," or a mutual understanding of importance and worth for the week. Chapters can approach their managers with the proposal that since NZKW is potentially the most public program AAZK hosts, as each Chapter's program can hold a variety of public and zoo employee-only events, it is a unique way to reach out and interact with guests. It can be an opportunity to explain the history of the career, the diversity of keeper backgrounds, different field projects keepers are involved in, and the day to day operations of the zoo. Ultimately, NZKW is an opportunity to create a more open relationship between a facility and their patrons. Additionally, due to the multi-faceted nature of the week, planning has to include not only the Chapter itself but each Chapter's facility, which sometimes includes managers and executive staff as high as the institution Director or President

and even local governments. It is crucial that management is approached in an appropriate way (i.e. don't go straight to the Director if they are a Chapter point person), and establish a strong line of communication for the development of activities. With that said, there can be facilities that don't allow their Chapters to recognize NZKW, either on or off grounds, because the week is perceived as gratitude for keepers only. Of course, there are many other dedicated professionals who contribute to the overall welfare of the animals and running of the facility. There is no reason a Chapter couldn't include these other employees and create a zoo appreciation week, or encourage management to celebrate other professional days and weeks as well (National





One of the goals of the National Zoo Keeper Week campaign is for zoos and aquariums to broaden their participation beyond zoo keeper appreciation activities. National Zoo Keeper Week offers an excellent opportunity to educate zoo visitors about the many diverse ways that zoo keepers are advancing the profession in animal care, animal welfare, research and conservation. Examples include the keeper staff at North Carolina Zoo participating in cardiac ultrasound training for the Great Ape Heart Project (pictured left), and Keeper Susan Eberth of the Toronto Zoo performing *in situ* conservation and community outreach for Ape Action Africa (opposite page).

What keeper activities can your zoo be sharing with local media and zoo visitors to promote your zoo?


Vet Tech Week, Administrative Professionals Day, Boss's Day, National Custodial Worker's Day, etc.).

Once "buy in" is achieved and a Chapter has a starting point, NZKW planning should start small regardless of the agreed upon level of publicity. Planning often falls on one or two people initially, so make sure the tasks aren't too much for those people to handle. This can be anything from having a sign printed announcing the week, planning a potluck luncheon, or keeper profiles on Chapter-run (or facility-run) social media pages. Once a few small activities are started and established, adding new ones becomes much easier. Once a Chapter establishes small-scale events, it is much easier to develop large-scale ongoing projects – especially because keepers and once potentially cautious managers will be interested and excited based on past successes.

While planning a NZKW program, it is important to remember that the week serves to not only recognize those in the animal care profession, but to thank the people who are a part of it. NZKW should be about both highlighting and celebrating the hard work that zoo keepers do 365 days a year, in every type of weather and on all holidays. It is equally important to display the professional development and fundraisers that keepers participate in as well. Including these components in keeper chats, on social media, and in any publications regarding the week will only strengthen the NZKW mission. Chapters can also highlight specific conservation projects (i.e. Trees for You

and Me or Chopsticks for Salamanders) that they contribute to. It is the passion for animals both *in situ* and *ex situ* that makes animal keeping more than just a job. Chapters can also hold art auctions or have art/photo displays of keeper work, zoo keeper Olympics, and/or distribute tokens of appreciation (cards, baked goods, small multi-tools, tote bags, water bottles, etc.).

Gaining the support of each host facility, starting small, and celebrating the people who work hard to maintain the overall health and wellbeing of zoological institutions will create both happier keepers and a more compassionate public. By following these steps and building on each success, National Zoo Keeper Week can start as a modest thank you and grow into a large-scale event. So, get out there and make NZKW enjoyable and educational, while promoting this fascinating career to the community at large. Remember - when have you ever told someone you were a zoo keeper, and their response was – "Oh, that must be so boring."

The National Zoo Keeper Week Program is now compiling a database of events and activities previously done by Chapters around the country. This list will be continuously updated and made available for all AAZK members to utilize in planning their own NZKW. If interested in contributing or obtaining the current information, please e-mail robin.sutker@aazk.org. 



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AAZK Dates to Remember



February

- ▶ 28th Nominations due for the AAZK Board of Directors. Guidelines for submitting nominations can be found in your December and January issues of the *Animal Keepers' Forum*.

March

- ▶ 1st Chapter re-charter applications due. Applications can be found on aazk.org.
- ▶ 1st Grants applications due. For more info go to: aazk.org/committee/grants-committee/

April

- ▶ 1st Early registration begins for 2015 AAZK National Conference in St. Louis, MO.
- ▶ 15th Voting opens to elect new Board of Directors and continues through June 1st. Go to aazk.org to vote!

May

- ▶ 1st Awards applications due. Contact janet.mccoy@aazk.org for more info.
- ▶ 1st Paper submissions due for 2015 AAZK National Conference.

June

- ▶ 1st Last day to vote for AAZK Board of Directors.



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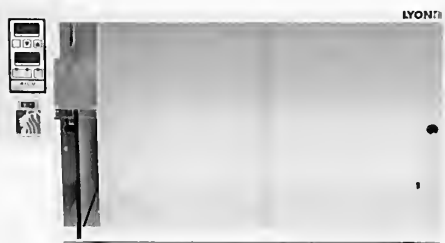
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